

# Control Process By Levels

# Level 1 - Activity Control

- Activity Management
  - Implement ATB vision/priorities
    - Establish/maintain project vision/priority/acceptance strategy
    - Execute ATB investment strategy
  - Plan/replan activities
    - Identify all activities
    - Identify and determine approach to life-cycle support (i.e., A76)
    - Establish/maintain resource estimates and schedules
    - Identify /maintain critical path & dependencies
    - Establish/maintain related work plans
    - Integrated project plans with terminal service plans
  - Execute activities
    - Status against integrated ATB schedule
    - Review performance against established plans
    - Allocating/reallocating project resources according to established priorities
    - Review performance against established plans
    - Report status & defects
  - Determine activity direction
    - Evaluate project alternatives, make decisions, take corrective action

# Level 1 - Activity Control

- Configuration Management
  - Tailor standard processes for activities
  - Establish & maintain activity configuration control boards
  - Identify all specific items to be controlled
  - Execute configuration management program
    - Establish/perform status accounting
    - Perform periodic audits
    - Place internal & contract products under CM and Manage changes
- Contract Management
  - Review/evaluate CDRLs/letters
  - Ensure contractors plans are used & maintained
  - Perform periodic reviews, perform finance activities
  - Monitor contractors support practices, modify contract
  - Communicate with contractor, conflict resolution (Legal)
  - Perform contract closeout

# Level 2 - Activity Coordination/ Integration

- Plan/replan integrated terminal service plan
  - Identify all ATB activities
  - Establish/maintain resource estimates and schedules
  - Identify /maintain critical path & dependencies
  - Establish/maintain related work plans
- Risk Mitigation
  - Identify terminal service risks
    - Automation, surveillance, facilities, plant infrastructure, voice communication, data communication, skill availability
  - Assess risks
    - Probability & impact
  - Develop risk mitigation plan
    - Commitment of resources, agreement of team & stakeholders
  - Execute risk mitigation plan
    - Monitor and track evolution of risk

# Level 2 - Activity Coordination/ Integration

- Define/evolve terminal business unit architecture
  - Derive terminal service system architecture requirements & structure
  - Develop architectural interface requirements for service
  - Package & allocate requirements to service products(based on priorities established by ATB management)
  - Capture system architecture for service
  - Select between potential new product technologies
  - Based on new technologies selected, adapt processes as needed
  - Ensure critical components available (spawn risk mitigation or research activities, as needed)
  - Consider specialty engineering disciplines (i.e., human factors, security, certification, spectrum) in all requirements & SE activities
- Develop & coordinate tools
  - Establish/maintain web-based, real-time process templates as part of project management execution and tracking

# Level 3 - Overall Internal Control

- Develop/maintain budget forecasts
- Budget formulation/allocation
  - Develop & maintain blue sheets, white sheets, red sheets, RPDs, JPDs, etc
  - SAT, SEOAT, ORMT, and G7 coordination and communication
  - Support CIP, Research Plan, Ops. Spend Plan and congressional reporting
- Cost accounting
  - Travel accounting & management
  - Spend plan creation, maintenance, tracking, and reporting
  - Baseline creation, maintenance, tracking, variance reporting, and projections
  - Develop/maintain Program Authorizations & Program Directives
- Allocating/reallocating ATB resources according to established priorities
  - Realign personnel resources

# Level 3 - Overall Internal Control

- Outsourcing
  - Prepare & release SIR package
  - Evaluate SIR responses
  - Make screening/selection decisions
  - Performance award activities
- Quality Assurance
  - Plan quality assurance
  - Monitor program compliance
  - Evaluate products & processes
  - Analyze quality
  - Detect need for corrective action
  - Initiate quality improvement opportunities
  - Assess process compliance
    - against appropriate formal models (iCMM, ISO 9000)

# Level 3 - Overall Internal Control

- Peer reviews
  - Establish peer review strategy
    - Methodology, items to be reviewed, review rules & schedule
  - Prepare for Peer Reviews
    - Develop/Maintain standards and criteria for each item to be reviewed
    - Execute review logistics (rooms, material, etc.)
  - Train Peer Reviewers
    - Identify specific reviewers (SME, essential disciplines)
    - Ensure review processes, standards and criteria well understood
  - Conduct Peer Review
    - Review products against standards
    - Record, Analyze and Report PR Data
    - Summarize system defects
    - Note Action Items
  - Follow-up and Closure
  - CM --- Establish initial baseline
    - Perform initial audit



# Level 3 - Overall Internal Control

- Measurement
  - Establish & maintain measurement systems
    - Establish/maintain qualitative measures
    - Establish/maintain historical measures data repository
  - Analyze ATB and product performance
    - Analyze service (product) & process measures
      - performance trends, cost of ownership, reliability
    - Determine root cause
    - Correlate trend analysis with investment strategy
    - Formulate & evaluate alternatives
      - Analyze requirement solution alternatives
      - Develop internal business case/perform investment analysis
    - Formulate recommendations
- Measurement
  - Develop/maintain service demand projections
    - Coordinate/provide input to NAS level service demand projections

# Level 3 - Overall Internal Control

- Defect Prevention
  - Conduct causal analysis (root cause)
  - Coordinate action proposals
  - Document & track prevention data
  - Review processes for defect prevention
- Workforce management
  - Develop employee training gap analysis
  - Establish/refine staffing standards
  - Appraise employees
  - Perform skills gap analysis
  - Coach/counsel/reward/grieve employees
  - Develop/maintain succession criteria/position criteria(classification)
  - Daily & yearly management
    - Time & attendance, leave processing, EEO reports, ethics training, financial disclosure, security forms, etc.

# Level 4 - Information Services

- Communicate
  - Communicate plans, changes and status to internal and external
  - Develop/maintain ATB message and communication material
    - political/financial/technical database
  - Specific opportunities
    - ATB staff meeting and all-hand meetings
    - Activity staff meetings and all-hand meetings
    - Ars, JRCs, SAT, SEOTS, NAS Architecture WG
    - RMC/ORMT, NIAC, AUA SE WG, IAIP/T/G7/TAT, OMB, OST
    - NAS architecture (ASD), NAS requirements, NICA, AUA SE WG, RTCA, ICAO, etc.
    - Unions, union liaison & relationships, impact & implementation
    - Correspondence control & coordination
    - One stop shopping for internal and external world (questions, comments, complaints/complements, help requests, etc.)
- Support unions, union liaison & relationships, impact & implementation

# Level 4 - Information Services

- Coordinate with NAS level activities
  - NASA, MITRE, etc research activities
    - Influence work towards terminal service needs
  - NAS architecture (ASD), NAS requirements, NICA, AUA SE WG, grants
  - RTCA, ICAO, etc.
- Research
  - Develop research plan to fulfill research gap
    - Uncertain requirements, uncertain alternatives, risk mitigation, component availability versus on-going NAS level research
    - Execute terminal ATB portion of research plan
  - Evaluate applicability of NAS level research to Terminal ATB needs
  - Identify & evaluate potential new commercial technologies
  - Select new opportunities & fold into ATB evolution
    - From on-going research or commercial technologies

# Level 4 - Information Services

- Determine terminal business unit capability evolution
  - Develop/maintain geo-political projections
  - Determine service/capability shortfalls and gaps within business unit
    - Solicit service evolution needs with operations
    - Gather service needs from external sources
  - Refine terminal service requirements to include validated needs
    - Evolve operational concepts
  - Provide input for resolution of NAS level shortfalls & gaps
  - Define time-phased terminal service evolution
    - Life-cycle cost estimation/trade-offs, Perform safety and security analyses, Perform cross ATB engineering and analysis
  - Derive and partition requirements to terminal service products
    - Analyze requirements
      - Correctness, completeness, consistency, testability, risk, impact
    - Allocate requirements
      - Allocate and refine requirements to specific function, Conduct trade-off analysis, Define/refine concept of use
    - Capture and baseline requirements

# Level 4 - Information Services

- Establish/maintain terminal business unit processes
- Provide/maintain personnel infrastructure
  - Offices, phones, paper, pencils, pagers, computers, LANs, information security, etc.
  - Property management
- Workforce training
  - Define training goals/strategic training needs
  - Plan & obtain training
  - Train individuals & Assess training effectiveness
  - Establish & maintain training records

# Level 5 - Strategy/Direction

- Vision
  - Establish/maintain ATB vision / priority / investment strategy/direction
    - Establish ATB criteria
  - Determine ATB strategies
    - Plan/develop ATB risk mitigation approach
    - Establish ATB CM strategy
      - CM methodology, levels of control, business rules & change process
    - etc.
  - Communicate strategies, directions, values & culture
- Determine business direction direction
  - Evaluate alternatives, make decisions, take corrective action

# Control Processes By Category



# Control Processes

1. ATB Management
2. Project Management
3. Financial Management
4. Contract Management
5. Service Define It
6. Sector Define It
7. Service Research
8. Performance Measurement
9. Quality Assurance
10. Defect Reduction
11. Risk Mitigation
12. Process Management (web-based real-time tracking)
13. Personnel Development and Management
14. Workforce Support
15. Peer Review
16. Communication
17. Configuration Management

# ATB Management

- Establish/maintain ATB vision / priority / investment strategy
- Plan/replan integrated terminal service plan
  - Identify all ATB activities
  - Establish/maintain resource estimates and schedules
  - Identify /maintain critical path & dependencies
  - Establish/maintain related work plans
- Execute ATB investment strategy
  - Status against integrated ATB schedule
  - Review performance against established plans
  - Allocating/reallocating ATB resources according to established priorities

Vision: ATB service wide integrated schedule, with critical path updated in near-real-time, available to all involved with the production and/or provision of terminal service (government & contractor).

# ATB Management (cont.)

- Analyze ATB performance
  - Analyze service & process measures
  - Correlate trend analysis with investment strategy
  - Analyze requirement solution alternatives
  - Develop internal business case/perform investment analysis
- Determine ATB direction
  - Evaluate ATB investment alternatives
  - Make decisions
  - Take corrective action

# Project Management

- Implement ATB vision/priorities
  - Establish/maintain project vision/priority/acceptance strategy
- Plan/replan project activities
  - Identify all project activities
  - Identify and determine approach to life-cycle support (i.e., A76)
  - Establish/maintain resource estimates and schedules
  - Identify /maintain critical path & dependencies
  - Establish/maintain related work plans
  - Integrated project plans with terminal service plans
- Execute project
  - Status against integrated ATB schedule
  - Review performance against established plans
  - Allocating/reallocating project resources according to established priorities
  - Review performance against established plans

# Project Management (cont.)

- Analyze performance
  - Analyze product & process measures
  - Conduct product & process trend analysis
  - Analyze requirement solution alternatives
  - Develop project business case/perform project investment analysis
- Determine project direction
  - Evaluate project alternatives
  - Make decisions
  - Take corrective action

# Financial Management

- Develop/maintain budget forecasts
- Budget formulation/allocation
  - Develop & maintain blue sheets, white sheets, red sheets, RPDs, JPDs, etc
  - SAT, SEOAT, ORMT, and G7 coordination and communication
  - Support CIP, Research Plan, Ops. Spend Plan and congressional reporting
- Cost accounting
  - Travel accounting & management
  - Spend plan creation, maintenance, tracking, and reporting
  - Baseline creation, maintenance, tracking, variance reporting, and projections
  - Develop/maintain Program Authorizations & Program Directives

# Contract Management

- Outsourcing
  - Prepare & release SIR package
  - Evaluate SIR responses
  - Make screening/selection decisions
  - Perform award activities
- Contract Management
  - Review/evaluate CDRLs/letters
  - Ensure contractors plans are used & maintained
  - Perform periodic reviews
  - Perform finance activities
  - Monitor contractors support practices
  - Modify contract
  - Communicate with contractor
  - Conflict resolution (Legal)
  - Perform contract closeout

# Service Define It & Sector Define It

- Communicate and coordinate with external organizations
  - NAS architecture (ASD), NAS requirements, NICA, AUA SE WG, RTCA, ICAO, etc.
  - Provide input for resolution of NAS level shortfalls & gaps
    - operational concept alternatives, risks, etc.
- Determine service/capability shortfalls and gaps within ATB
- Analyze and provide feedback on impact of proposed needs
- Refine terminal service requirements to include validated needs
  - Evolve operational concepts
- Derive and partition requirements to terminal service products
- Allocate requirements
  - Allocate and refine requirements to specific function
  - Conduct trade-off analysis
  - Define/refine concept of use
- Analyze requirements
  - Correctness, completeness, consistency, testability, risk, impact
- Capture and baseline requirements



# Service Define It & Sector Define It (cont.)

- Define terminal service evolution
  - Communicate/coordinate/cross NAS engineering with NIAC, AUA SE WG, etc.
  - Life-cycle cost estimation/trade-offs
  - Perform safety and security analyses
  - Perform cross ATB engineering and analysis
- Derive terminal service system architecture requirements & structure
- Develop architectural interface requirements for service
- Package & allocate requirements to service products(based on priorities established by ATB management)
- Capture system architecture for service
- Select between potential new product technologies
- Based on new technologies selected, adapt processes as needed
- Ensure critical components available (spawn risk mitigation or research activities, as needed)
- Consider specialty engineering disciplines (i.e., human factors, security, certification, spectrum) in all requirements & SE activities

# Service Research

- Coordinate with NAS level research activities
  - NASA, MITRE, etc
  - Influence work towards terminal service needs
- Develop research plan to fulfill research gap
  - Uncertain requirements, uncertain alternatives, risk mitigation, component availability versus on-going NAS level research
  - Execute terminal ATB portion of research plan
- Evaluate applicability of NAS level research to Terminal ATB needs
- Identify & evaluate potential new commercial technologies
- Select new opportunities
  - From on-going research or commercial technologies

# Performance Measurement

- Develop/maintain service demand projections
  - Coordinate/provide input to NAS level service demand projections
- Develop/maintain geo-political projections
- Establish/maintain qualitative measures
- Establish/maintain historical measures data repository
- Analyze performance trends & project breach
- Analyze cost of ownership & project breach
- Analyze system reliability & project breach
- Determine root cause
- Formulate & evaluate alternatives
- Formulate recommendations

# Quality Assurance

- Plan quality assurance
- Monitor program compliance
- Evaluate products & processes
- Analyze quality
- Detect need for corrective action
- Initiate quality improvement opportunities

# Defect Reduction

- Conduct causal analysis (root cause)
- Coordinate action proposals
- Document & track prevention data
- Review processes for defect prevention

# Risk Mitigation

- Plan/develop terminal service risk mitigation approach
- Identify terminal service risks
  - Automation, surveillance, facilities, plant infrastructure, voice communication, data communication, skill availability
- Assess risks
  - Probability & impact
- Develop risk mitigation plan
  - Commitment of resources, agreement of team & stakeholders
- Execute risk mitigation plan
  - Monitor and track evolution of risk

# Process Management

- Establish/maintain terminal business unit processes
- Establish/maintain web-based, real-time process templates as part of project management execution and tracking
- Assess process compliance
  - against appropriate formal models (iCMM, ISO 9000)

# Personnel Development and Management

- Workforce management
  - Develop employee training gap analysis
  - Establish/refine staffing standards
  - Appraise employees
  - Perform skills gap analysis
  - Coach/counsel/reward/grieve employees
  - Realign personnel resources
  - Develop/maintain succession criteria/position criteria(classification)
- Workforce training
  - Define training goals/strategic training needs
  - Plan & obtain training
  - Train individuals & Assess training effectiveness
  - Establish & maintain training records



# Workforce Support

- Daily & yearly management
  - Time & attendance, leave processing, EEO reports, ethics training, financial disclosure, security forms, etc.
- Provide/maintain personnel infrastructure
  - Offices, phones, paper, pencils, pagers, computers, LANs, information security, etc.
- Property management

# Peer Review

- Establish peer review strategy
  - Methodology, items to be reviewed, review rules & schedule
- Prepare for Peer Reviews
  - Develop/Maintain standards and criteria for each item to be reviewed
  - Execute review logistics (rooms, material, etc.)
- Train Peer Reviewers
  - Identify specific reviewers (SME, essential disciplines)
  - Ensure review processes, standards and criteria well understood
- Conduct Peer Review
  - Review products against standards
  - Record, Analyze and Report PR Data
  - Summarize system defects
  - Note Action Items
- Follow-up and Closure
  - Track open items/defects to closure

# Communication

- Communicate terminal service plans, changes and status to internal team and external stakeholders
- Develop/maintain ATB message and communication material
  - political/financial/technical database
- Specific opportunities
  - ATB staff meeting and all-hand meetings
  - Area team staff meetings and all-hand meetings
  - Ars, JRCs, SAT, SEOTS, NAS Architecture WG
  - RMC/ORMT,
  - NIAC, AUA SE WG
  - IAIPT/G7/TAT
  - OMB, OST
  - Unions, union liaison & relationships, impact & implementation
  - Correspondence control & coordination
  - One stop shopping for internal and external world (questions, comments, complaints/complements, help requests, etc.)
- General process
  - Determine purpose of communication & audience and mechanism
  - Gather information and prepare
  - Execute Communication & share information (with team and stakeholders)

# Configuration Management

- Establish ATB CM strategy
  - CM methodology, levels of control, business rules & change process
- Establish & maintain configuration control boards
- Identify all specific items to be controlled
- Perform initial audit
  - Establish initial baseline
- Execute configuration management program
  - Establish/perform status accounting
  - Perform periodic audits
  - Place internal & contract products under CM
  - Manage changes

Vision: ATB service wide CM system, covering all aspects of ATB processes & products across life-cycle, available to all involved with the production and/or provision of terminal service (government & contractor).